






i	Name of Technology	: Value addition of Roselle calyces
ii	Application/ Use	: Value added products (Sharbat, Jam, syrup, sweet pickle)
iii	Description of Technology : <p><i>Hibiscus sabdariffa</i> L., member of the family malvaceae (also known as Roselle calyces) is a tropical plant of considerable economic potential. Different value added products from Roselle calyces e.g. sharbat, Jam, syrup, pickle, Roselle supari etc were prepared.</p> <p>Roselle sharbat was prepared with the proportion of sugar syrup in extract equivalent to 1:0.22. To prepare sharbat from 100 g extract, nearly 4 to 5 table spoon of sugar syrup is sufficient. For preparation of roselle concentrated syrup, calyces extract to sugar ratio was taken 1:0.75.</p> <p>The supari powder was obtained from retained calyces, after their drying. The dried supari powder prepared by adding 0.30 g cumin powder, 0.40 g black salt, 5 g common salt in 10 g retained calyces.</p> <p>The Roselle jam prepared from calyces obtained from 1 kg fresh Roselle fruit, 1 kg sugar and 1 liter of water was required. Roselle sweet pickles were prepared from the retained calyces obtained during concentrated syrup. 50 g of retained calyces were mixed with 50 g of sugars and heated till stickiness is lost.</p>	 
iv	Input/raw material	: Roselle calyces, sugar, water etc.
	Man power	: 1 skilled 1 unskilled
	Land	: 10 m ²
	Investment	: Rs. 37,000/-
v	Output capacity	: 25 kg Roselle fruit/day
vi	Unit cost	: Rs 32/kg for Jam Rs 33/ lit for syrup (sweet pickle is byproduct)
vii	Suitability for crop/ commodity	: Roselle calyces
viii	Efficiency	: -
ix	Unit cost of operation	: Rs 32/kg for Jam Rs 33/lit for syrup (sweet pickle is byproduct of syrup)
xi	Contact Address	Research Engineer, AICRP on PHT College of Agricultural Engineering Dr. Punjabrao Deshmukh Krishi Vidyapeeth, Krishi Nagar, AKOLA - 444 104 (Maharashtra)


i.	Name of the Technology	:	Utilization of 'patchouli spent charge' after distillation of essential oil for the manufacture of agarbatti
ii.	Application/ Use	:	Wood powder, one of the raw materials used in the manufacture of agarbatti @15% level, can be replaced advantageously up to 10% with the powdered by-product namely, 'patchouli spent charge' with improved quality characteristics
iii.	Description of Technology:		
	<p>Patchouli spent charge, the by-product (waste) obtained after extracting essential oil from patchouli herbage was sun dried and ground to 20-40 mesh powder using a shredder and a grinder. This powder can be substituted (up to 10%) for the wood powder normally used at about 15% level in the manufacture of agarbatti base sticks which are subsequently dipped in fragrance solutions to get commercial agarbattis. Since, the 'spent charge' powder also contains about 0.1-0.5% aromatic essential oil, the agarbattis can have added patchouli smell. Wherever patchouli oil is used in the agarbatti dip (fragrance) solution, in such cases, the costly essential oil usage is either reduced / replaced by using the above agarbatti base sticks prepared using the 'spent charge' powder.</p>		
iv.	Inputs	:	
	a) Raw material	:	Patchouli 'spent charge' powder
	b) Machinery	:	Shredder and Grinder
v.	Output capacity	:	About 4000 agarbatti base sticks per person
vi.	Unit cost (per machine)	:	-
vii.	Suitability for crops/commodity	:	Patchouli
viii.	Efficiency	:	Up to 2/3 of wood powder requirement in agarbattis is substituted with 'patchouli spent charge' powder (waste material).
ix.	Unit cost of operation	:	Not calculated as the technology is at laboratory scale
x.	Patent obtained/applied	:	Not yet
xi.	Contact address		Research Engineer, AICRP (PHT), University of Agricultural Sciences, GKVK, Bangalore – 560065 (Karnataka)


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i.	Name of the Technology	:	Cashew Apple Beverages
ii.	Application/ Use	:	Ready to Serve beverage, Squash
iii.	Description of Technology : After removal of astringency i.e., tannin the decanted juice was used to prepare different beverages.		
iv.	Input/raw material	:	Cashew apple, sugar, KMS, citric acid, polyvinyl pyrolidone
	a) Overall dimension	:	Screw type fruit juicer, S.S knives, S. S. Utensils
	b) Weight	:	-
	c) Prime mover	:	Single phase electricity supply
	d) Man power	:	-
	e) Land	:	-
	f) Investment	:	-
v.	Output capacity	:	100 kg of cashew apple and 30 kg sugar gives 400 bottle of 200 ml capacity RTS. 100 kg. cashew apple and 26 kg. sugar gives 75 bottles of 750 ml capacity squash.
vi.	Unit cost of operation	:	-
vii.	Suitability for crops/commodity	:	Cashew Apple
viii.	Efficiency	:	N.A.
ix.	Unit cost (per machine)	:	Cashew apple RTS: Rs. 4.90/- per 200 ml glass bottle Cashew apple Squash: Rs. 16.75/- per 750 ml glass bottle
x.	(a) No. of Licensees to whom the technology has been transferred	:	Technology transferred to NGOs, SHGs at production catchments.
xi.	Contact Address	:	Research Engineer, AICRP on Post harvest Technology College of Agricultural Engineering and Technology, Orissa University of Agriculture and Technology, Bhubaneswar- 751 003


i.	Name of the Technology	:	Zero Waste Technology for Osmo Dehydrated Pineapple Products
ii.	Application/ Use	:	Osmo dehydrated pineapple rings, tidbits, RTS, Squash
iii.	Description of Technology :		<p>After thorough cleaning of pineapples, they are sliced into 6-8 circular pieces. Skin is removed with the help of S. S. punches. Hard core is removed with S.S. corer. The circular pieces are kept in sugar syrup of 57-60^oB for 8 hours. Then pieces are removed and adhering syrup wiped up. Then the pieces are dried at 70^o C for 24 hours in a tray dryer. The broken pieces are dried in the same manner and tidbits are made. RTS and Squash are prepared from juice extracted out of thick skin/peel and leftover sugar syrup. The leftover of pineapple skin/peel with meat after juice extraction is called pineapple meal. This by product is used as an ingredient for cattle feed after drying and pulverization.</p>
			
iv.	Input/raw material	:	Pineapple, sugar, KMS, citric acid
	a) Overall dimension	:	S.S punches, S.S Corer, S.S knives, S.S. Utensils
	b) Weight	:	
	c) Prime mover	:	Single phase electricity supply
	d) Man power	:	-
	e) Land	:	-
	f) Investment	:	-
v.	Output capacity	:	-
vi.	Suitability for crops/commodity	:	Pineapple
vii.	Efficiency	:	
viii.	Unit cost of operation	:	
ix.	Unit cost (per machine)	:	1. Osmo dehydrated pineapple ring: Rs. 10/- per 5 pcs.(100gm.) 2. Pineapple tidbits: Rs. 9/- per 100gm.
x.	Patent obtained/applied	:	Nil
xi.	Commercialization status	:	Commercialized
	(a) No. of Licensees to whom the technology has been transferred	:	Nil
	(b) Selected Addresses of Licensee / Manufacturer	:	-
xii.	Contact Address	:	Research Engineer, AICRP on Post harvest Technology College of Agricultural Engineering and Technology, Orissa University of Agriculture and Technology, Bhubaneswar- 751 003

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i.	Name of the Technology developed	:	Aloe Vera Blended Ready to Serve Beverage
ii.	Application/ Use	:	Ready to Serve Beverage
iii.	Description of Technology : After removal of a loin the clarified gel was used to prepare blended RTS beverage. Lemon and ginger juice has been added as blended material.		
iv.	Input/raw material	:	Aloe vers, lemon juice, ginger juice, sugar, KMS,, citric acid
	a) Overall dimension	:	Aloe vera gel extractor, S.S knives, S. S. Utensils
	b) Weight	:	N.A.
	c) Prime mover	:	-
	d) Man power	:	
	e) Land	:	-
	f) Investment	:	-
v.	Output capacity	:	10 kg of aloe vera leave yields 100 no of bottles @200ml RTS
vi.	Unit cost (per machine)	:	Rs. 5.00/- per 200 ml glass bottle
vii.	Suitability for crops/commodity	:	-
viii.	Efficiency	:	-
ix.	Unit cost of operation	:	-
x.	Patent obtained/applied	:	Nil
xi.	Commercialization status	:	Ready for commercialization
	(a) No. of Licensees to whom the technology has been transferred	:	Nil
	(b) Selected Addresses of Licensee / Manufacturer	:	-
xii.	Contact Address	:	Research Engineer, AICRP on Post harvest Technology College of Agricultural Engineering and Technology, Orissa University of Agriculture and Technology, Bhubaneswar- 751 003


	Name of the Technology	:	Pineapple peeler-cum-corer-cum slicer device
i.	Application/ Use	:	Peeling, coring and slicing of pineapple
ii.	Description of Technology :		
	<p>The device consists of a stainless steel central shaft to which slicing plate is attached in a spiral form. A stainless steel pipe of 2.5 cm diameter and 25 cm length is used for fabrication of the pineapple peeler-cum-slicer. One end of the pipe is serrated for easy of penetration. A stainless steel plate is attached to the pipe in a helical manner (7 cm diameter). The open ends of the ring are sharpened and have a gap of 1.5 cm between them forming a groove for cutting the pineapple rings. The peeler-cum-slicer is pressed against the pineapple and twisted to cut the peel by the side plate. The pineapple core is cut at the pipe end and inserted inside the pipe as the peeler rotated forward and finally removed from the pipe.</p>		
iii.	Input	:	
	a) Raw material	:	Pineapple
	b) Machinery	:	
	• Overall dimension	:	200 x 70 x 70 mm
	• Weight	:	400 g
	• Prime mover	:	Manual
	c) Man power	:	1 no
	d) Land	:	-
	e) Investment	:	-
iv.	Output capacity	:	20 fruits per h
v.	Unit cost of operation	:	Rs. 1.00 per pineapple
vi.	Suitability for crops/commodity	:	Pineapple
vii.	Efficiency	:	94.5 % (peeling and slicing)
viii.	Unit cost (per machine)	:	Rs. 300/-
ix.	Patent obtained/applied	:	-
x.	Commercialization status	:	Ready for commercialization
	(a) No. of Licensees to whom the technology has been transferred	:	Nil
	(b) Selected Addresses of Licensee / Manufacturer	:	N.A.
x.	Contact Address	:	Research Engineer, AICRP on Post harvest Technology College of Agricultural Engineering and Technology, Orissa University of Agriculture and Technology, Bhubaneswar- 751 003 (Orissa)

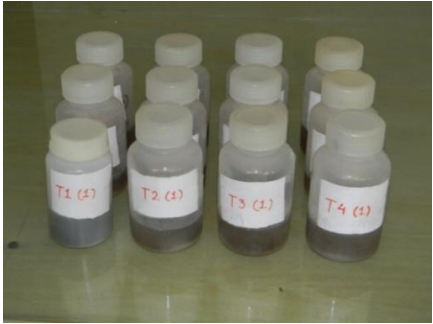
i.	a. Type of Technology	:	Process
	b. Technology developed	:	Complete process protocol for probiotic fruit juice (apple)
ii.	Application/Use	:	Highly stable and reconstitutable probiotic apple juice powder which is consistent with a broadly controlled intestinal flora that optimally supports the health of the consumer.
iii.	<p>Description of Technology: The process protocol for apple juice has been developed. The detail process for the production of probiotic fruit juice powder (flow chart) is given below.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;"> <pre> graph TD A[Mature ripe fruits] --> B[Washing] B --> C[Extraction of juice] C --> D[Filtration of juice (muslin cloth)] D --> E[Pasteurization (72°C for 15s)] E --> F[Incorporation of probiotic bacteria (1 % v/v)] F --> G[Incubation (at 37°C for 48 hours)] G --> H[Addition of additive material] H --> I[Homogenization] I --> J[Spray drying of probiotic fruit juice] J --> K[Packaging (Aluminum foil pouches)] K --> L[Storage (room temperature)] </pre> </div> <div style="text-align: center;">  </div> </div>		
iv.	Input/	:	
	Raw material	:	Apple and orange
	Machinery	:	Spray drier unit, Autoclave, Laminar flow chamber, etc.,
	a) Overall dimension	:	N.A.
	b) Weight	:	N.A.
	c) Prime mover	:	N.A.
	e) man power	:	Three
	f) Land	:	-
	g) Investment	:	20 lakhs
v.	Output capacity	:	1150 kg/h
vi.	Unit cost (per machine)	:	N.A.
vii.	Suitability for crops/commodity	:	Apple, orange
viii.	Efficiency	:	
ix.	Unit cost of operation	:	Rs.900 per kg of probiotic powder
x.	Patent obtained/applied	:	
xi.	Commercialization status	:	Ready for commercialization
	Contact Address	:	Research Engineer, AICRP on PHT and Head, Agricultural Machinery Research Centre, Tamil Nadu Agricultural University, Coimbatore - 641 003


i.	Name of the Technology	:	Safe and low cost <i>holi</i> powder from tapioca
ii.	Application/ Use	:	To be used for playing 'Holi' during the 'Holi' festival time
iii.	Description of Technology:		
	<p>Safe holi colours extracted from food colours (FPO, 1955) approved. The colours index (FPO approved) were used, e.g. green (Tartrazine: 19140, Brilliant blue FCF: 42090), Orange (Carmoisine: 14720, Sun set yellow FCF: 15985), Red (Carmoisine: 14720).</p> <p>The 'holi powder' making process is started with preparation of 10 % (volume by volume) uniformly mixed solution of food colour of choice (3.65% a.i.) in normal filtered water. To this solution tapioca flour is mixed uniformly in ratio 1:1 that is 1000ml solution is mixed to 1000gm dry flour and a dough is made. This dough is spread thinly (about 1cm thickness) over cloth or plastic sheet to dry under sun till moisture level less than 10%-13% (wet basis). Then, the colured flour is passed through hammer mill and sieving (250 micron), respectively to get the "holi powder". The final product contains 0.365% active ingredient (dye). The 'holi' powders can be stored at room temperature inside polypropylene bags at dark.</p>		
			
iv.	Input	:	
	a. Raw material	:	50 kg tapioca flour, Fruits Products Order approved food color 5 litre 53-250 micron (tapioca flour), Fruits Products Order approved food colour
	b. Machinery	:	Hammer mill and tray drier (optional)
	Overall dimension	:	N.A.
	Weight	:	N.A.
	Prime mover	:	1.5 hp motor
	c. Man power	:	2
	d. Land	:	5mx5m
	e. Investment	:	Rs 75,000/-
v.	Output capacity	:	48 kg
vi.	Cost of machines	:	Rs 45,000/-
vii.	Suitability for crops/commodity	:	Tapioca
viii.	Efficiency	:	96%
ix.	Unit cost of product	:	Rs 75 to 80 per Kg (finished product)
x.	Patent obtained/applied	:	Nil
xi.	Commercialization status	:	Ready for commercialization
	(a) No. of Licensees to whom the technology has been transferred	:	No
	(b) Selected Addresses of Licensee /Manufacturer	:	No
	Contact Address	:	Research Engineer AICRP on PHT; Deptt. of Agril Engineering Assam Agricultural University, Jorhat-13

	Name of the Technology	:	Storage of Ginger Rhizomes in Fresh Form
i.	Application/ Use	:	Increase shelf life up to 6 months after harvest.
ii.	Description of Technology : <p>Fresh rhizomes can be stored safely in a bamboo rack placed in a covered and aerated space. The breadth of each shelf of the rack should be such that, it is easier to inspect the material. If it is made near the wall, it should be not more than 50 cm. The vertical distance between two shelves should be at least 25 cm so that it is easy to inspect the rhizomes. When the numbers of shelves increase, the numbers of posts should also be adjusted to bear the load of rhizomes and sand. The shelves should be made with bamboo mat, below which support should be given with un-split bamboo. The Bamboo mat is covered with gunny/ polythene bags. In one meter square area of each shelf, about 7.5 to 10 kg fresh rhizomes can be stored.</p> <p>For 1m² area, 10 kg sand is required to form a 1" layer of sand. Rhizomes to be stored are cleaned with water to remove the adhered soil. Only matured and healthy rhizomes are selected for storage. The rhizomes are placed near to each other over the sand layer. Again a 1" layer of sand is made to cover the rhizomes. Water should be sprinkled uniformly over the dry sand @ 3-4 lit/m² area, so that the moisture content of the sand becomes about 30% on dry wt basis.</p> <p>There is no problem from Jan to middle of April. However, April onward, sprouting starts which need to be broken manually, when these are 1"-2" in length. Rotten rhizomes should be discarded. Water should not be sprinkled up to one week after nipping the sprouts. By this method, rhizomes can be stored well up to 6 months retaining the quality of fresh ginger. During these 6 months, though 40-50 percent weight is lost, it is not visible in the appearance of the rhizomes, as water is absorbed during storage. The weight us lost due to respiration and it is mainly the carbohydrate, which is broken down as CO₂ and water during storage. However, the volatile oils and oleoresins imparting flavour and pungency, respectively to the rhizomes are retained by this method of storage. Though 40-50% fresh weight is reduced, during the said period, the price of raw ginger is increased by 100-300% and as such, there is no chance of loss of profit, if rhizomes are stored. The structure made with the help of above mentioned materials can be used for storage of rhizomes for 5 years.</p>		
iii.	Input/raw material	:	Bamboo (30 Nos) 100 kg rhizomes, 200-250 kg sand for 100 kg rhizomes, Some rope or wire to make the frame, used up gunny bags or polythene bags, One saw and a sieve for sieving the sand.
	a) Overall dimension	:	-
	b) Land	:	-
	c) Investment	:	Rs.1500/-
iv.	Output capacity	:	100 kg per batch
v.	Unit cost (per machine)	:	Rs. 300/- per quintal
vi.	Suitability for crops/commodity	:	Ginger
vii.	Efficiency	:	-
viii.	Unit cost of operation	:	-
ix.	Patent obtained/applied	:	No
x.	Commercialization status	:	Ready for commercialization
	(a) No. of Licensees to whom the technology has been transferred	:	Nil
	(b) Selected Addresses of Licensee or Manufacturer	:	Nil
xi.	Contact Address	:	PI, AICRP on PHT Deptt. of Agril Engg; Assam Agricultural University, Jorhat-13


i	Name of the Technology	:	Sapota Cleaner
ii	Application/ Use	:	Cleaning of sapota after harvest
iii	Description of Technology with photograph attached It is a hand-operated sapota cleaner with mild steel screen drum. The drum is supported by MS angle frame. The inside surface drum has been provided with jute cloth. The rubbing action of sapota surface over jute cloth gives shining to the surface. The sapota are fed by door provided on drum. The door is to be closed. A handle is provided to drum for revolving manually. The revolving action of drum clean and give the shining to the sapota surface.	 <p style="text-align: center;">Sapota cleaner</p>	
iv	Input/raw material		
	a. Overall dimension		
	b. Weight		
	c. Prime mover		Manual operated
	d. Man power		1
	e. Land		NA
	f. Investment		Rs. 5000/-
v	Output capacity		240 kg/hr
vi	Unit cost		Rs. 5000/-
vii	Suitability for crop/ commodity		Sapota
viii	Efficiency		99%
ix	Unit cost of operation		Rs. 0.50/kg
x	Contact Address		Research Engineer, AICRP on Post Harvest Engineering and Technology Department of Processing & Food Engg. College of Agril. Engg. & Technology Junagadh Agricultural University Junagadh -362001 Phone: 0285-2672080-90 Ext 479

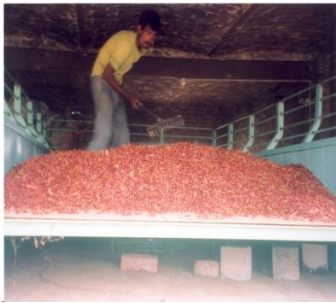
i	Name of the Technology	:	Extraction of pectin from Kesar mango peel by resins
ii	Application/ Use	:	For production of pectin from mango processing industrial waste (mango peel).
iii	Description of Technology with photograph attached Mango processing industries (mango canning plant) produces peel as waste every day. They have to get rid of these waste. This is a problem for environmental view also. Pectin are very much useful for various food industries. Use of resin produces better quality pectin from mango peel waste.		
iv	Input/raw material		
	a. Overall dimension		NA
	b. Weight		NA
	c. Prime mover		2000 kwh
	d. Man power		15 Nos.
	e. Land		About 400 sq. mt.
	f. Investment		Rs. 3000000/- (Approx.)
v	Output capacity		500kg/month
vi	Unit cost		Rs. 3000000/- (Approx.) for 500 kg/month capacity
vii	Suitability for crop/ commodity		Mango
viii	Efficiency		NA
ix	Unit cost of operation		Rs. 600/kg
x	Contact Address		Research Engineer, AICRP on Post Harvest Engineering and Technology Department of Processing & Food Engg. College of Agril. Engg. & Technology Junagadh Agricultural University Junagadh -362001 Phone: 0285-2672080-90 Ext 479


i	Name of the Technology	: Extraction of Enzymes from Potato Peels Substrate using Bacillus group of Bacteria.
ii	Application/ Use	: For production of amylase and protease enzymes from potato processing industrial waste.
iii	Description of Technology with photograph attached Potato processing industries produces peel as waste every day. They have to get rid of these waste. This is a problem for environmental view also. Amylase and protease enzymes are very much useful for various industries. Use of bacillus group of bacteria produces amylase and protease enzymes from potato peel waste.	 <p style="text-align: center;">Crude Enzyme Extract</p>
iv	Input/raw material	
	a. Overall dimension	NA
	b. Weight	NA
	c. Prime mover	3 HP motor for purification
	d. Man power	3 Nos.
	e. Land	About 200 sq. mt.
	f. Investment	Rs. 15000000/-
v	Output capacity	Amylase - 4665/50 hr batch; Protease - 14.76 gm/50 hr batch
vi	Unit cost	Machine cost: Rs. 11750000/-
vii	Suitability for crop/ commodity	Potato
viii	Efficiency	NA
ix	Unit cost of operation	The fix cost and variable cost of 1 tonne processing of potato peel substrate will be approximately 1,01,145/-for 50 hours batch. The cost benefit ratio is 1:7.54.
x	Contact Address	Research Engineer, AICRP on Post Harvest Engineering and Technology Department of Processing & Food Engg. College of Agril. Engg. & Technology Junagadh Agricultural University Junagadh -362001 Phone: 0285-2672080-90 Ext 479


i	Name of the Technology	:	Farm Level Fruit and Vegetable Washing Machine
ii	Application/ Use	:	A wide range of fruit and vegetables (carrot, potato, raddish, turnip, ginger, okra, tomato, spinach, turnip, kinnow and pears) can be mechanically washed and can replace the prevalent practice of washing which involves drudgery and unhygienic conditions. This machine can be used both by the producer as well as a processor.
iii	<p>Description of Technology : A stainless steel, portable, electric power (1 hp) operated vegetables washing machine has been designed, developed and evaluated. The inner rotary drum of the washer is made of stainless steel with 1.5 mm thickness, 760 mm length and 620 mm diameter. The periphery of the drum is provided with perforations of 6 mm diameter each @ 20 per 100 cm. The drum is mounted between two bearings through a hollow shaft and stainless steel pipe carrying water is placed inside the shaft. Pressurized sprays of water with a water injection pump through the central, perforated inner shaft is provided for extensive washing. The machine is provided with a timer and an electronic device to regulate precisely the rotational speed of the drum upto 60 rpm. Proper arrangements for feeding water into machine and draining out dirty water and silt is provided. Rotating parts and moving belts are covered with guard for operational safety.</p>		
			
iv	Input/raw material	:	Carrot, potato, raddish, turnip, ginger, okra, tomato, spinach, turnip, kinnow and pears.
	a) Overall dimension	:	860 x 760 x 1140 mm
	b) Weight	:	200 kg
	c) Prime mover	:	Electric motor
	d) Power	:	1 hp
	e) Man power	:	one
	f) Land	:	4 m x 4 m
	g) Investment	:	Rs 50,000-70,000 (for different capacity model)
v	Output capacity	:	1 - 6 q/ h
vi	Unit cost (per machine)	:	Rs 50,000-70,000 (for different capacity model)
vii	Suitability for crops/commodity	:	Carrot, potato, raddish, turnip, ginger, okra, tomato, spinach, turnip, kinnow and pears.
viii	Efficiency	:	90.2-95.5% (Washing efficiency)
ix	Unit cost of operation	:	Rs. 1 –10/q
x	Patent obtained/applied	:	Nil
	Commercialization status	:	commercialized
xi	(a) No. of Licensees to whom the technology has been transferred	:	01
	(b) Selected Addresses of Licensee / Manufacturer	:	Paradise Engg. Corp., 392, Industrial Area-A, Ludhiana-141 003, INDIA
xii.	Contact Address	:	Research Engineer, AICRP on PHT Department of Processing and Food Engineering, College of Agricultural Engineering Punjab Agricultural University Ludhiana-141004 (Punjab)


i.	Name of the Technology	: Turmeric Washing and Polishing Machine.
ii.	Application/ Use	: Turmeric washing and polishing machine not only to remove field soil, dust etc. but also removes spores of heat resistant bacteria. Turmeric washing and polishing machine can replace the prevalent practice used by the producer and small processor.
iii.	Description of Technology : A stainless steel, portable, electric power (1 hp) operated, rotary drum type turmeric washing and polishing machine has been designed and developed to wash and polish turmeric rhizomes. The drum washer made of stainless steel is 62cm in diameter and 61 cm in width with 6mm holes and is provided with a timer and an electric device to regulate precisely the rotational speed of the drum upto 100 rpm. Proper arrangements for feeding water into machine and drawing out dirty water and silt are provided. The machine when operated at optimum rotational speed for optimum time can wash 2.5-3.0 qph of turmeric rhizomes. At optimum performance parameters, i.e. 40 rpm for 5 min. there is no bruising in turmeric rhizomes, with a microbiological washing efficiency of 91%. For polishing purpose, the central perforated shaft (for sprinkling water) is removed. To increase the friction, three detachable perforated screens are attached along the inner periphery of the drum with abrasive surface on the inner side. The microbiological quality of turmeric rhizomes also increased by polishing because the surface microbial load was reduced to half.	
iv.	a) Input/raw material	: Turmeric rhizomes
	b) Overall dimension	: 860 x 760 x 1140 mm
	c) Weight	: 200 kg
	d) Prime mover	: Electric motor
	e) Power	: 1 hp
	f) Man power	: One
	g) Land	: 4 m x 4 m
	h) Investment	: Rs 50,000-70,000 (for different capacity model)
v.	Output capacity	Turmeric washer: 2.5 – 3.5 qph Turmeric polisher: 1.0 qph
vi.	Unit cost (per machine)	: Rs 50,000-70,000 (for different capacity model)
vii.	Suitability for crops/commodity	: Turmeric
viii.	Efficiency	: Washing efficiency 91%
ix.	Unit cost of operation	: (washing) Rs. 5/q; Rs 7/q (Polishing)
x.	Patent obtained/applied	: Nil
xi.	Commercialization status	: Commercialized
	(a) No. of Licensees to whom the technology has been transferred	: One
	(b) Selected Addresses of Licensee or Manufacturer	: Paradise Engg. Corp. 392, Industrial Area-A, Ludhiana-141 003 INDIA
xii.	Contact Address	: Research Engineer, AICRP on PHT Department of Processing and Food Engineering, College of Agricultural Engineering Punjab Agricultural University Ludhiana-141004 (Punjab)


i	Name of the Technology	:	Electric-Cum-Battery Heated Uncapping Knife
ii	Application/ Use	:	For uncapping of wax sealed cells filled with ripened honey, usually ordinary knife is used and it can be replaced by electric-cum-battery heated uncapping knife. This will help in fatigue less operation and will result in more number of frames to be uncapped in less time and can replace the prevalent practice of uncapping with non scientific and unhygienic conventional knives. Since this knife is fitted with an auto temperature cut off device, thus avoids overheating and can help in maintaining quality of honey which otherwise results in caramellization of sugar due to high temperature encountered in other electrical knives. This uncapping knife will be helpful for both the entrepreneurs as well as bee keepers.
iii	Description of Technology :		<p>The electrically-cum-battery heated uncapping knife has been designed to uncap the wax seals on the comb cells. The design is based on the dimensions of the frame over which the wax sheet containing the cells is present. The total length of knife is 37.5 cm comprising of 25.4 x 6.5 cm knife blade of 0.2 cm thick MS sheet. A fine nichrome wire is used for the heating element (of 1 amp. Current rating) on a 13 x 3.5 cm mica sheet. It has facilities to operate both on 220 V AC supply as well as 12 V DC power supply.</p> 
iv	Input/raw material	:	Honey comb frame filled with honey
	a) Overall dimension	:	238 x 71 x 3 mm (Knife blade)
	b) Weight	:	542 gm
	c) Prime mover	:	Electric and Battery
	d) Power	:	Power supply/220 V AC – 1 amp current rating
	e) Man power	:	One
	f) Land	:	Working place for one person
	g) Investment	:	Rs. 250 – Rs. 300
v	Output capacity	:	18 – 22 sec/single frame
vi	Unit cost (per machine)	:	Rs. 250 – Rs.300/-
vii	Suitability for crops/commodity	:	Honey
viii	Efficiency	:	98-100%
ix	Unit cost of operation	:	Rs 0.5/frame
x	Patent obtained/applied	:	Nil
xi	Commercialization status	:	It is in the process of commercialization.
	(a) No. of Licensees to whom the technology has been transferred	:	Nil
	(b) Selected Addresses of Licensee or Manufacturer	:	M/s H.V Industries, K-105 Focal Point, Phase VII, Dhandhari Kalan, Ludhiana
xii.	Contact Address	:	Research Engineer, AICRP on PHT Department of Processing and Food Engineering, College of Agricultural Engineering Punjab Agricultural University Ludhiana-141004 (Punjab)

i	Name of the Technology	:	Trolley Drier
ii	Application/ Use	:	The drier can be used to dry at the farm itself to dry grains such as Paddy and vegetable such as chilly etc.
iii	<p>Description of Technology :</p> <p>A tractor trolley available with farmer has been converted in to dryer (fig. 8.1). A multi-crop trolley drier was designed and got fabricated. The total size of screen on which the material to be placed for drying is 4267.2 x 2133.6 mm, whereas the perforated screen is of the dimension of 4054 x 2042 mm. The air is heated with electric heater. Hot air at desired temperature (ambient to 60oC) is blown through plenum chamber into the material to be dried. The drier consist of a set of three heaters (each of 20KW); which can be switched on as per the desired temperature requirement. The drier can hold about 3-4 qtls of chillies and 1-1.5 ton of paddy per batch. The trolley drier has been tested at no load conditions and was found that the velocity of air throughout the plenum chamber was approximately +0.2 m/s and the flow rate of air was nearly 496.8 m³/min. The testing of trolley dryer on load is under process.</p>		
			
iv	Input/raw material	:	Paddy and chilli
	a) Overall dimension	:	4165 x 2340 x 2110 mm
	b) Weight	:	1000 kg
	c) Prime mover	:	Electric Power
	d) Power	:	24 kW (3 heaters each of 8kW).
	e) Man power	:	2 mandays
	f) Land	:	10 m x 10 m
	g) g) Investment	:	Rs.1,50,000 – 2,00,0,00/-
v	Output capacity	:	The trolley drier can fold 2-3 q of chillies and 10-15 q of paddy per batch. The drier can dry 10 quintals per batch of paddy in 100 minutes for 5% moisture reduction and it can dry 2 quintals of red chillies from 80% to 10 % moisture in 28 hours
vi	Unit cost (per machine)	:	Rs.1,50,000 – 2,00,0,00/-
vii	Suitability for crops/commodity	:	Paddy and Chilli
viii	Efficiency	:	N.A
ix	Unit cost of operation	:	For Paddy (Rs 20/qtl), For chillies (Rs 90/qtl)
x	Patent obtained/applied	:	Nil
xi	Commercialization status	:	The technology has been tested and evaluated. It is in the process of commercialization
	(a) No. of Licensees to whom the technology has been transferred	:	Nil
	(b) Selected Addresses of Licensee or Manufacturer	:	-
xii.	Contact Address	:	Research Engineer, AICRP on PHT Department of Processing and Food Engineering, College of Agricultural Engineering Punjab Agricultural University Ludhiana-141004 (Punjab)


i	a. Type of Technology	:	Equipment
	Name of the Technology	:	Honey Heating-cum Filtration System
ii	Application/ Use	:	This heating cum filtration system save time and ease the cumbersome process of heating and filtration of honey simultaneously in one unit under hygienic conditions.
iii	<p>Description of Technology : This is a fully mechanized Honey Filtration Unit with separate heating and filtration arrangements having two separate sensors for sensing and controlling the temperature of heating water as well as honey in the main chamber. It consists of two sections; the top heating section and the lower filtering section. The heating section consists of a double walled cylinder and two electric heating elements, each of 2 kW fixed in the space in between the outer and inner cylinder filled with water which is heated by heating element provided. In addition a separate pipe is provided for filling/ unfilling of water in/from the system which is attached with a tullu pump for recirculating the water causing turbulence thus helping in maintaining uniform temperature of water used for indirect heating of honey. In order to have uniform temperature profile throughout the heated honey an electrically operated six fins stirrer was attached which is operated by 0.25 hp motor, stirring the sample at optimum speed as and when required. The heated honey is passed to the filtration unit through the hole provided at the bottom of the inner cylinder and extended through a pipe having gate valve. The filtration section consists of the stainless steel cylinder having lid of four layered muslin cloth.</p>		
			
iv	Input/raw material	:	Honey
	a) Overall dimension	:	686 x 686 x 1524 mm
	b) Weight	:	110 kg
	c) Prime mover	:	Electric Power
	d) Power	:	4 kW
	e) Man power	:	1
	f) Land	:	1 x 1m
	g) Investment	:	Rs 35,000
v	Output capacity	:	50 Kg/ batch
vi	Unit cost (per machine)	:	Rs 35,000
vii	Suitability for crops/commodity	:	Honey
viii	Efficiency	:	N.A
ix	Unit cost of operation	:	0.50/kg
x	Patent obtained/applied	:	Nil
xi	Commercialization status	:	In process of commercialization
	(a) No. of Licensees to whom the technology has been transferred		Nil
	(b) Selected Addresses of Licensee / Manufacturer	:	M/s H.V Industries, K-105 Focal Point, Phase VII, Dhandhari Kalan, Ludhiana
xii.	Contact Address	:	Research Engineer, AICRP on PHT Department of Processing and Food Engineering, College of Agricultural Engineering Punjab Agricultural University Ludhiana-141004 (Punjab)



i.	Name of the Technology	:	Eight Frame Radial Honey Extractor
ii	Application/ Use	:	A stainless steel radial honey extractor with eight frames was used to extract honey from honey combs using the principle of centrifugal force.
iii	Description of Technology :		
	The extractor was so designed that it could be operated both manually as well as through 0.5 hp electric motor. The body of the extractor is made up of 22 gauge stainless steel sheet, having eight frames radially arranged at an angle of 45o to the central shaft for fast and easy extraction. . A strainer is fitted just below the frames for primary filtration. It can store upto 1 qtl of honey.		
iv	Input/raw material	:	Honey combs
	a) Overall dimension	:	805 x 805 x 1310 mm
	b) Weight	:	106 kg
	c) Prime mover	:	Electric Power
	d) Power	:	0.5 hp
	e) Man power	:	2
	f) Land	:	1x 1 m
	g) Investment	:	Rs. 40,000/-
v	Output capacity	:	18-190 kg/hr
vi	Unit cost (per machine)	:	Rs. 40,000/-
vii	Suitability for crops/commodity	:	Honey
viii	Efficiency	:	100%
ix	Unit cost of operation	:	Rs 11/Qtl
x	Patent obtained/applied	:	Nil
xi	Commercialization status	:	Commercialized
	(a) No. of Licensees to whom the technology has been transferred	:	01
	(b) Selected Addresses of Licensee or Manufacturer	:	Teewana Bee Farm, Doraha, Ludhiana (Punjab)
xii	Contact Address	:	Research Engineer, AICRP on PHT Department of Processing and Food Engineering, College of Agricultural Engineering Punjab Agricultural University Ludhiana-141004 (Punjab)


i.	Name of the Technology	:	Production of Sapota Powder
ii.	Application/ Use	:	Sapota fruits are delicious and are eaten as desert fruit. Usually, only pulp is consumed but the fruit skin can also be eaten, since it is richer than pulp in its nutritive value. The changing life style and demand for soft drink concentrate supported the evolution of the technology of producing sapota powder. The sapota powder can be used as base material for the preparation of sapota juice and can very best be used as an additive @ 20 % by weight in the preparation of traditional sweet recipes viz., coconut <i>burfi</i> , , banana milk-shake and banana <i>shikarani</i> , <i>rava laddu</i>
iii.	Description of Technology : Procure ripe sapota fruits and wash them with clean water. Cut the fruits in to 5mm thick slices. Dry the fruit slices naturally under the sun or artificially by using hot air dryer at 60°C for 20 hours to reduce the moisture content to about 8% (w. b.). Grind the dehydrated fruit pieces in a mixer grinder. Sieve the mixture to get the fine powder (150 micron size). The sapota powder thus produced can be used by as an additive to the extent of 20% by weight in the preparation of sweets. The sapota powder can be stored in a HDPE pouches for 3 months under ambient condition.		
iv.	Input/raw material	:	Sapota fruits, Solar/mechanical dryer, grinder, sieves
	a) Overall dimension	:	N.A.
	b) Weight	:	N.A.
	c) Prime mover/ Plant & Machinery	:	N.A.
	d) Man power	:	One person
	e) Power	:	Solar / electric heater
	f) Land	:	N.A.
	g) Investment	:	N.A.
v.	Output capacity	:	N.A.
vi.	Unit cost (per machine)	:	Rs. 100/- per kg of sapota powder
vii.	Suitability for crops/commodity	:	Sapota fruits
viii.	Efficiency	:	N.A.
ix.	Unit cost of operation	:	Rs. 46 / Kg
x.	Patent obtained/applied	:	Nil
xi.	Commercialization status	:	Ready for Commercialization
	(a) No. of Licensees to whom the technology has been transferred		One Bakery units and 27 farmers
	(b) Selected Addresses of Licensee/Manufacturer	:	-
xii.	Contact Addresses	:	Sr. Scientist & PI, AICRP on Post Harvest Technology Dept. of Processing and Food Engineering, College of Agricultural Engineering, UAS, Raichur.




i.	Name of the Technology	:	Custard Apple Fruity
ii.	Application/ Use	:	Custard apple is mostly consumed as table fruit. The processed product of Custard apple fruity is highly refreshing, thirst quenching and nutritionally for superior than many synthetic and aerated drinks.
iii.	Description of Technology : <p>After removal of skin and seed the extracted pulp of custard apple (1 kg), sugar 75 gm, orange juice 750 ml and lime juice 100 ml was mixed using mixer/grinder.</p> 		
iv.	Input/raw material	:	Custard apple (1 kg), sugar 75 gm Orange juice 750 ml and lime juice 100 ml
	a) Overall dimension	:	N.A.
	b) Weight	:	N.A.
	c) Prime mover/ Plant & Machinery	:	Mixer/grinder
	d) Man power	:	2
	e) Space requirement	:	12sqm
	f) Power	:	N.A.
	g) Land	:	-
	h) Investment	:	-
	v. Output capacity	:	2 lit /h
	vi. Unit cost (per machine)	:	Rs. 8.00/150 ml
	vii. Suitability for crops/commodity	:	Custard apple
	viii. Efficiency	:	-
	ix. Unit cost of operation	:	-
	x. Patent obtained/applied	:	No
	xi. Commercialization status	:	Ready to commercialize
	(a) No. of Licensees to whom the technology has been transferred	:	-
	(b) Selected Addresses of Licensee/Manufacturer	:	Nil
	xii Contact Address	:	Research Engineer, AICRP on PHT Department of Agricultural Engg, Indira Gandhi Krishi Vishwa Vidyalaya RAIPUR - 492012 (Chhattisgarh)





i.	Name of the Technology	:	Process for Mango Leather (Aam Papad), Mango powder and Mango Toffee
ii.	Application/ Use	:	The local varieties of Mango in Chhattisgarh are screened for processed products like mango leather, mango powder (amchur), etc. The farmer may prevent distress sale.
iii.	Description of Technology :		
	Mango toffee made by boiling (at 150-160°C) mango pulp and other ingredients like glucose/sugar, milk powder and edible fat. The fruit pulp was first concentrated to half of its volume. For one kilo gram of concentrated pulp, 160 g of glucose, 320 g of milk powder and 200 g of ghee is added. This mixture is further heated to a thick consistency (75-80° Brix) followed by spreading (one cm thickness on a smeared flat tray) and allowed to cool. Then, these are cut into pieces (called as toffee) of desired size, wrap and store it in cool dry place. The mango leather required about 100 to 110 h to dry from the initial moisture content of around 76 -86% (wb). The ideal moisture of mango leather to have storage stability is 15% or a little more with a relative humidity between 63-70%. It was found that mangoes at an optimum stage of maturity (9-10 weeks after fruit-set) are good for preparation of mango powder. Bisulphate treatment given to the slices to improve retention of colour and vitamin-C. A drying period of 8-10 h in tray dried and 15-18 h in sun is necessary to reduce moisture content to 2-3% when the tray load is 0.6 kg ft ² with a drying temperature of 55+ 5° C.		
iv.	Input/raw material	:	Mango powder- Raw Mango, potassium metabisulphite, Mango toffee, leather: Ripe mango, Sugar, Skim milk power, Ghee, Choco power,
	a) Overall dimension	:	-
	b) Weight	:	-
	c) Prime mover/ Plant & Machinery	:	Tray drier, Gas Stove, Utensils, Mixer/Grinder , Solar dryer, Pulper Aluminum Tray
	d) Man power	:	5
	e) Space requirement	:	20sqm
	f) Power	:	-
	g) Land	:	-
	h) Investment	:	-
v.	Output capacity	:	Mango Toffee- 300 no (8 g) Mango leather -50 kg/day Mango powder -10kg/day
vi.	Unit cost (per machine)	:	Mango Toffee- Rs. 0.5/toffee (8 g) Mango leather – Rs 75/kg Mango powder –Rs. 10/pouch of 50 g
vii.	Suitability for crops/commodity	:	Mango
viii.	Commercialization status	:	Ready to commercialize
ix	(a) No. of Licensees to whom the technology has been transferred	:	Nil
x	(b) Selected Addresses of Licensee/Manufacturer	:	Nil
xii	Contact Address	:	Research Engineer, AICRP on PHT Department of Agricultural Engg, IG KV Vidyalyaya, RAIPUR - 492012 (Chhattisgarh)

i.	Name of the Technology	:	Extraction of Kernel Oil from Apricot / Wild Apricot Seed
ii	Application/ Use	:	Apricot stones are used for kernel oil extraction and oil being rich in polyunsaturated fatty acids and vitamin E is used as edible oil and for many medicinal and cosmetic purposes. It is used for body massage, baby massage, relieving joint pain, as face oil for dry skin and in preparation of facial creams, body lotion etc.
iii	Description of Technology :		<p>The technology for extraction of apricot kernel oil consist of mechanical decortications, kernel separation with gravity method, extraction of kernel oil with table oil expeller, filtration and then packing of oil in bottles. The stone breaking efficiency of mechanical decorticator varies from 80-100kg/hr against manual crushing of 3.2-4.6 kg stones per hour. The decorticated stones are immersed in 20% salt solution (1.888 specific gravity) and floated kernels are separated immediately from the crushed apricot stones. The separated kernels after immediate washing under tap water and drying under sun or in mechanical drier to remove surface moisture are passed through Table oil expeller for 3-4 times for extraction of oil from apricot kernels with an oil yield of 42-45%. The extracted oil is filtered through filter press prior to its packing in glass or plastic bottles. Add 0.02% TBHQ (tertiary butyl hydroquinone) for better storage quality of oil.</p>
			 
iv	Input/raw material	:	Apricot/wild apricot Stones, Salt, TBHQ, Glass/Plastic bottles
	a. Overall dimension (L x B x H mm)	:	-
	b. Weight	:	Decorticator=1.5 q. Oil expeller= 2q, oil filter press= 1q
	c. Prime mover and machinery	:	Mechanical stone decorticator, Table oil expeller, Oil filter press, PP Cap sealing machine, Plastic tub, buckets etc.
	d. Power (hp)	:	Three phase electricity, 8 hp
	e. Man power	:	01
	f. Land	:	250 Square mts
	g. Investment	:	Rs. 1.55 lakh
v	Output capacity	:	80-100 kg stone/h, 5 kg kernel/ h and 2 kg oil/h
vi	Unit cost (per machine)	:	Rs. 55,000/- (decorticator), Rs. 60000/- (table oil expeller) and Rs. 30000/- oil filter press
vii	Suitability for crop/ commodity	:	Apricot and wild apricot
viii	Efficiency	:	More efficient than traditional practices
ix	Unit cost of operation	:	Rs. 275/-kg oil
x	Patent obtained/applied	:	No
xi	Commercialization status	:	Commercialized
	a) No. of Licensees	:	02 manufacturers and 02 farmers cum processor
	b) Addresses of Licensees / Manufacturer	:	<ol style="list-style-type: none"> 1. M/S Sardar Engineering Company, Kanpur, India 2. M/s Kishan Krishi Yantra Udyog, Kanpur, India 3. M/s Sushree khormoshu Self Help Group (SHG), Spillow 4. M/s WWF (World wide fund for nation (India)) at Rakhsham, Sangla, Kinnaur.
xii	Contact Address	:	PI, AICRP on PHT Department of Food Science & Technology, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan - 173 230 (HP)

i	Name of the Technology	:	Technology for Preparation of Rtu Mushroom tikki Mix
ii	Application/ Use	:	Instant Mushroom Tikki is a very good alternative to commercially available noodles because of high nutritional composition and thus posses a very good scope for its industrialization
iii	Description of Technology : The following steps are used in preparation of MushroomTikki from Instant tikki mix All the ingredients are added in the mushroom powder (100g) and then 125-130ml of water is added and mixed well to form a dough till it does not stick to hands. Now make tikki of usual shape manually (15-20g). Make Frying in oil (3-4 minutes)		
iv	Input/raw material	:	Mushroom flour (30g), Potato flour (50g), Corn flour (8.5g) Arra roat (6g), Onion powder (4g), Garlic powder (0.5g), Common salt (3g), Red pepper (3g), Black pepper (1g).
	a) Overall dimension (L x B x H mm)	:	Home scale
	b) Weight	:	N.A.
	c) Prime mover and machinery	:	Mechanical dehydrator, grinder, fryer
	d) Power (hp)	:	250 volts (Single phase)
	e) Man power	:	1
	f) Land	:	-
	g) Investment	:	Mechanical drier=50,000/-, steamer/frier=250/-, grinder=3000/-
v	Output capacity	:	-
vi	Unit cost (per machine)	:	N.A.
vii	Suitability for crop/ commodity	:	Mushroom
viii	Efficiency	:	-
ix	Unit cost of operation	:	Rs. 14.23 per 100g pack
x	Patent obtained/applied	:	No
xi	Commercialization status	:	Ready to transfer
	a) No. of Licensees	:	Nil
	b) Addresses of Licensees / Manufacturer	:	Nil
xii.	Contact Address		Research Engineer/ PI, AICRP on PHT Department of Food Science & Technology, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan - 173 230 (HP)


i	Name of the Technology	:	Technology for Preparation of Mushroom Powder
ii	Application/ Use	:	White button mushroom which are not utilized for fresh market can be used for drying and preparation of different product. Mushroom powder can be utilized for the preparation of different value added products like soup powder, instant noodles, tikki powder etc and thus posses a very good scope for its adoption by the industry.
iii	Description of Technology :		
	<p>For the preparation of mushroom powder fresh mushrooms are washed and cut into 2 to 4 pieces. Cut mushrooms are blanched in a solution containing 0.05 per cent KMS + 0.1 per cent citric acid + 125 ppm EDTA. then drained the cut mushrooms and Cabinet Air Drying (at 60°C). after that dried mushrooms are grind and packed and stored</p>		
			
iv	Input/raw material	:	Mushrooms, KMS, EDTA, Citric Acid
	a) Overall dimension (L x B x H mm)	:	-
	b) Weight	:	-
	c) Prime mover and machinery	:	Mechanical dehydrator, grinder
	d) Power (hp)	:	Single phase (250 volts)
	e) Man power	:	01
	f) Land	:	-
	g) Investment	:	Mechanical dehydrator=50,000/-, Grinder=3500/-
v	Output capacity	:	10-12kg per hour (vary on the basis of drying rate of commodities)
vi	Unit cost (per machine)	:	-
vii	Suitability for crop/ commodity	:	Mushroom
viii	Efficiency	:	-
ix	Unit cost of operation	:	Rs. 318/kg powder
x	Patent obtained/applied	:	Applied
xi	Commercialization status	:	Ready for commercialization
	a) No. of Licensees	:	Nil-
	b) Addresses of Licensees /Manufacturer	:	Nil
xii	Contact Address		Research Engineer/ PI, AICRP on PHT Department of Food Science & Technology, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan - 173 230 (HP)


b.	Name of the Technology	:	Technology for Preparation of Instant Mushroom Noodles.
ii	Application/ Use	:	Instant Mushroom Noodles are a very good alternative to commercially available noodles because of high carbohydrate and protein contents and thus posses a very good scope for its adoption by the industry.
iii	Description of Technology :		
	The following steps are used for preparation of instant mushroom noodles. Take Mushroom Powder.Add potato flour, wheat flour. Rice flour. Baking powder and edible oil Kneed with water (78%) to form dough.Pass through manual extruder.Steaming (3-4 minutes)Air Drying (24 hours). Packaging and Storage		
iv	Input/raw material	:	Mushroom flour (20g), Potato flour (20g), Wheat flour (40g), Rice flour (20g) Baking powder (0.2g), Edible oil (2.0ml)
	a) Overall dimension (L x B x H mm) of the machinery required	:	Mechanical dehydrator dimensions 90×60×90 cm, extruder, steamer and grinders used in the process are of home scale
	b) Weight	:	-
	c) Prime mover	:	Dehydrator, extruder, steamer and grinders
	d) Power (hp)	:	250volts (single phase)
	e) Man power	:	01
	f) Land	:	-
	g) Investment	:	Rs. 5500/- home scale level
v	Output capacity	:	-
vi	Unit cost (per machine)	:	N.A.
vii	Suitability for crop/ commodity	:	Mushroom
viii	Efficiency	:	N.A.
ix	Unit cost of operation	:	Rs. 12.70 per 100g pack
x	Patent obtained/applied	:	No
xi	Commercialization status	:	Technology is ready for transfer
	a) No. of Licensees	:	Nil
	b) Addresses of Licensees or Manufacturer	:	Nil
xii	Contact Address	:	Research Engineer/ PI, AICRP on PHT Department of Food Science & Technology, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan -173 230 (HP)

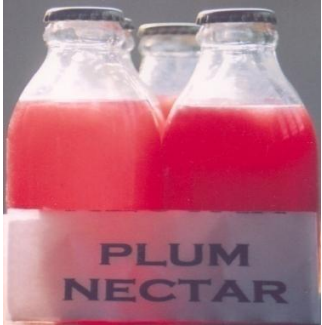
i.	Name of the Technology	:	Technology for Preparation of RTU Mushroom Soup Powder
ii	Application/ Use	:	Instant Mushroom Soup powder is a very good alternative to commercially available soup powder because of high protein and energy contents and thus posses a very good scope for its adoption by the industry.
iii	Description of Technology : The following steps are required to prepare RTU Mushroom Soup Powder <ul style="list-style-type: none"> • Take mushroom powder • Add different ingredients to make soup powder as per recipe (4) • Take Instant Mushroom Soup Powder (100g) • Add little water (50ml) • Add paste to boiling water (950ml) • Simmer, stir and boil for 4-5 minutes • Ready to serve 		
			
iv	Input/raw material	:	Mushroom flour (20g), Potato flour (15g), Milk Powder (38g), Corn flour (10g) Mushroom chunks (2g), dried carrot cubes (1g), Dried cauliflower (1g), dried peas (1g), Onion powder (2.5g), Garlic powder (0.5g), Ginger powder (0.5g), Common salt (8g), Sugar (1g), Edible oil (2.0ml), Citric acid (0.5g).
	a. Overall dimension (L x B x H mm)	:	-
	b. Weight	:	-
	c. Prime mover and machinery	:	Mechanical dehydrator, grinder
	d. Power (hp)	:	Single phase
	e. Man power	:	01
	f. Land	:	-
	g. Investment	:	Rs. 55000/- for small scale
v	Output capacity	:	-
vi	Unit cost (per machine)	:	N.A.
vii	Suitability for crop/ commodity	:	Mushroom
viii	Efficiency	:	-
ix	Unit cost of operation	:	Rs. 15.63 per 100g pack
x	Patent obtained/applied	:	No
xi	Commercialization status	:	Ready for commercialization
	a) No. of Licensees	:	Nil
	b) Addresses of Licensees /Manufacturer	:	Nil
xii.	Contact Address	:	Research Engineer/ PI, AICRP on PHT Department of Food Science & Technology, Dr. Y.S. Parmar University of Horticulture and Forestry, Nauni, Solan - 173 230 (HP)

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i	Name of the Technology	:	Cloud Stable Cherry Squash
ii	Application/ Use	:	Ready to serve cherry squash
iii	Description of Technology : The fruits were washed with running water to remove any adhered dirt and dust particles. The stalks were removed manually, only fully ripened fruits were selected for the product development. Rotten fruits were discarded and thereafter, the fruit was pulped by cold and hot break methods. In case of hot break method pulp was obtained by heating the fruit to 85 ° C for 15 minutes. The pulp obtained by hot break method using pulper was preserved with 1000 ppm sodium benzoate and bottled in pre-sterilized glass bottles. The pulp obtained by was then utilized for product development as per the FPO standards. The hot sugar syrup was added to the strained pulp and mixed thoroughly. Then citric acid and sodium benzoate were added to the product and mixed thoroughly. The stabilizer used was Carboxymethyl cellulose (CMC) @ 0.75%.The squash was filled in pre-sterilized bottles (650 ml), capped, cooled, labeled and then stored at ambient temperature (15-30° C,R.H 60-80%). Formulation having 25 % pulp, 1.5 % acidity , TSS 50% and 0.75% CMC was the best.		
iv	Input/raw material	:	Cherry pulp, Sodium benzoate as preservative, Sugar, Citric acid and Carboxymethyl cellulose, glass bottles, crown corks
	h. Overall dimension (L x B x H mm)	:	N.A.
	i. Weight	:	N.A.
	j. Prime mover (motor, compressor, etc.)	:	Rs 35000
	k. Power (hp)	:	-
	l. Man power	:	4 man days for 120 days
	m. Land	:	-
	n. Investment		<ul style="list-style-type: none"> • Pulper 250 Kgs/hr Rs 30,000 • PP Caping Machine Rs 5,000 • Aluminium Patilas Rs.5,000 • Bottle washing machine Rs 15,000 • Refractrometer Rs. 4000 • Weighing balance Rs 5,000 • Gas Bhati Rs 5000 • Working table Rs 5000
v	Output capacity	:	1000 kg / day cherry
vi	Unit cost (per machine)	:	
vii	Suitability for crop/ commodity	:	Cherry
viii	Efficiency	:	-
ix	Unit cost of operation		Rs 29.46/ bottle
x	Patent obtained/applied	:	No
xi	Commercialization status	:	Transferred to small scale farmer- cum- processor
	a) No. of Licensees	:	-
	b) Addresses of Licensees or Manufacturer	:	-
xii	Contact Address	:	PI, AICRP on PHT Sher-e-Kashmir University of Agri. Sciences and Technology, Shalimar Campus, SRINAGAR – 191 121 (J&K)

1.			
i	Name of the Technology	:	Cherry Candy
ii	Application/ Use	:	
iii	Description of Technology : Pitted cherry fruits were bleached using KMS 0.2 % for 3-4 weeks. The bleached fruits were than treated with 2 % Calcium Chloride, 1.5% citric Acid and red colour @0.05% for 30 minutes. The dyed fruits were than dipped in 70% sugar solution for 24 hours, drained syrup, washed fruits in running water and after applying glycerin to trays of dehydrator dried product for 5 hrs at 60 °C.		
iv	Input/raw material	:	Cherry Fruit, Potassium metabisulphite, calcium chloride, Sugar, Citric acid , glycerin, red colour and LDPE packs
	a. Overall dimension (L x B x H mm)	:	N.A.
	b. Weight	:	N.A.
	c. Prime mover (motor, compressor, etc.)	:	-
	d. Power (hp)	:	-
	e. Man power	:	4 man days for 120 days
	f. Land	:	-
	g. Investment		<ul style="list-style-type: none"> • Aluminium Patilas Rs. 5,000 • Refractrometer Rs. 4,000 • Weighing balance Rs 5,000 • Gas Bhati Rs 5,000 • Working table Rs 5,000 • Sealing machine Rs 5,000 • Drier Rs 30,000 • Osmatic Tank Rs 5,000 • Jerry cans 10 nos Rs 1,000 • Wahing tank Rs 5,000 • Strainer Rs 2,000 • Plastic Buckets Rs 1,000
v	Output capacity	:	10 kg candy per day
vi	Unit cost (per machine)	:	
vii	Suitability for crop/ commodity	:	Cherry
viii	Efficiency	:	-
ix	Unit cost of operation		Rs 11.40 per 100kg
x	Patent obtained/applied	:	No
xi	Commercialization status	:	Transferred
	a) No. of Licensees	:	-
	b) Addresses of Licensees or Manufacturer	:	-
xii	Contact Address	:	PI, AICRP on PHT Sher-e-Kashmir University of Agri. Sciences and Technology, Shalimar Campus, SRINAGAR – 191 121 (J&K)

i	Name of the Technology	:	Plum Appetizer
ii	Application/ Use	:	Drink
iii	Description of Technology :		
	<p>The sorted and selected fruits are washed to remove adherent dust particles and remove the stalks manually. Fruits are pulped using hot break method (mashed with 10 per cent water, heated to 85°C for 10 minutes). Then pulp extraction was carried out using junior pulper fitted with 1/32 seive. The pulp obtained was weighed, hot filled in pre-sterilized glass bottles of 650 ml capacity, crown corked and then sterilized in boiling water for 30 minutes. The pulp is strained through double folded muslin cloth, hot sugar syrup is added to strained pulp and mixed thoroughly. Then spices extracts (cardamom, cumin, and black pepper, ginger juice and black salt and fresh mint) is added. The preserved pulp is utilized for product development as per specifications are added to it, followed by addition of mint and ginger extracts, later on citric acid was added to all formulations and sodium benzoate@ 120 ppm to control (T_o) only. The nectar is then hot filled in pre-sterilized turbo glass bottles of 200ml capacity. The bottles are crown corked, pasteurized in boiling water for 30 minutes, cooled, labeled and stored at ambient temperature (15-35° C; relative humidity 60-80%).</p>		
iv	Input/raw material	:	Fresh plum, spices (cardamom, Cumin, black pepper, Black salt, common salt, fresh ginger and mint
	a. Overall dimension (L x B x H mm)	:	N.A.
	b. Weight	:	N.A.
	c. Man power	:	4 man days for 120 days
	d. Land	:	-
	e. Investment		<ul style="list-style-type: none"> • Pulper 250 Kgs/hr Rs 30,000 • Crown Corking Machine Rs 3,000 • Pasteurization Tank Rs 4,000 • Aluminium Patilas Rs.5,000 • Bottle washing machine Rs 15,000 • Refractrometer Rs. 4,000 • Weighing balance Rs 5,000 • Gas Bhati Rs 5000 • Working table Rs 5000 • Mixer Grinder Rs 4000
v	Output capacity	:	1055 bottles per day
vi	Unit cost (per machine)	:	
vii	Suitability for crop/ commodity	:	Plum
viii	Efficiency	:	-
ix	Unit cost of operation		Rs 6.20 per bottle @190 ml
x	Patent obtained/applied	:	No
xi	Commercialization status	:	Transferred
	a) No. of Licensees	:	Nil
	b) Addresses of Licensees or Manufacturer	:	Nil
xii	Contact Address	:	PI, AICRP on PHT Sher-e-Kashmir University of Agri. Sciences and Technology, Shalimar Campus, SRINAGAR – 191 121 (J&K)


1.	Name of the Technology	:	Walnut kernel incorporated rice based extruded snacks
2.	Application/ Use	:	Utilization of broken walnut kernels and broken rice for development of Ready to serve products
3.	Description of Technology: <p>Walnut kernel supplementation increases the nutritional value of starch based expanded snacks. A systematic study was conducted for optimizing the blending level of broken walnut kernels and broken rice for the production of expanded snacks through twin screw extruder by Srinagar Centre of AICRP on PHET. Response surface methodology was used to study the effects of feed composition, feed moisture, screw speed and barrel temperature on specific mechanical energy (SME), bulk density (BD), water absorption index (WAI), water solubility index (WSI), expansion ratio (ER), hardness and colour coordinates. With the increase in walnut kernel incorporation; bulk density, WSI, hardness, complexing index and oil loss were increased, while as SME, WAI and expansion ratio were decreased. With the increase in feed moisture SME, WSI and expansion ratio were decreased whereas, bulk density, WAI, hardness, complexing index and oil loss were increased. With the increase in screw speed, decrease in bulk density, WAI, hardness, complexing index, oil loss and increase in SME, WSI and expansion ratio were observed. With the increase in barrel temperature SME, bulk density, WAI and hardness were decreased, whereas, WSI, expansion ratio, complexing index and oil loss were increased. Optimized processing parameters by response surface methodology for preparation of extruded product where broken walnut kernel incorporation (10%), feed moisture (14%), screw speed (550 rpm) and barrel temperature 170⁰ C.</p>		
4.	Input/optimum processing conditions		
	Raw material	:	Broken walnut kernel:Broken rice flour = 10:90
	Feed moisture	:	14%
	Screw speed	:	550 rpm
	Barrel temperature	:	170 ⁰ C
5.	Proximate composition of final product		
	Moisture	:	3.42%
	Ash	:	0.60%
	Crude Protein	:	9.50%
	Crude Fiber	:	2.80%
	Crude Fat	:	3.3%
	Carbohydrate	:	80.38%
	Sensory score		3.0 (good after 3 months of storage at ambient condition)
6.	Cost		88/kg
7.	Commercialization status		Ready to Commercialize
8.	Contact Address		PI, AICRP on PHET Sher-e-Kashmir University of Agri. Sciences and Technology, Shalimar Campus, SRINAGAR – 191 121 (J&K)






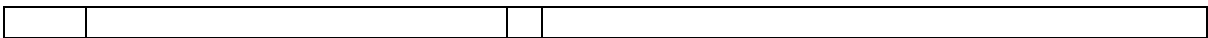
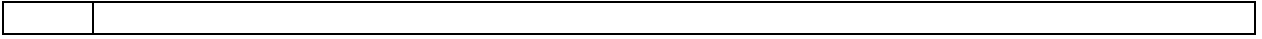
1. Name of the Technology	:	Lotus stem and broken rice based expanded snacks
2. Application/ Use	:	Utilization of lotus stem and broken rice for development of Ready to serve products
3. Description of Technology:		<p>Lotus stem incorporation increase the fiber content of starch based extruded snacks. A systematic study was conducted for optimizing the blending level of lotus stem and broken rice for the production of expanded snacks through twin screw extruder by Srinagar Centre of AICRP on PHET. Response surface methodology was used to study the effects of feed composition, feed moisture, screw speed and barrel temperature on specific mechanical energy (SME), bulk density (BD), water absorption index (WAI), water solubility index (WSI), expansion ratio (ER), hardness and colour coordinates. Within the experimental range it was observed that:</p> <p>a) Effect of Barrel Temperature was most predominant on Expansion ratio and Color coordinates.</p> <p>b) Effect of Screw speed was most predominant on Breaking Strength and SME.</p> <p>c) Effect of Feed composition was most predominant on Bulk density, WAI and WSI.</p>
4. Input/optimum processing conditions		
Raw material	:	Lotus stem flour:Broken rice = 40:60
Feed moisture	:	15%
Screw speed	:	500 rpm
Barrel temperature	:	170 ^o C
5. Proximate composition		
Moisture	:	4.20%,
Ash	:	0.98%
Protein	:	8.20%,
Crude Fiber	:	2.82%
Carbohydrate	:	83.32%
Crude Fat	:	0.48%
Sensory score		3.5 (good after 3 months of storage at ambient condition)
6. Cost (Rs.)		250/kg
7. Commercialization status	:	Ready to commercialize
8. Contact Address	:	PI, AICRP on PHET Sher-e-Kashmir University of Agri. Sciences and Technology, Shalimar Campus, SRINAGAR – 191 121 (J&K)



1.	Name of the Technology	:	Cloud stable health drink from blend of Apricot and Sea buckthorn.
2.	Application/ Use	:	Ready to serve
3.	Description of Technology: Sea buckthorn despite having highly acidic nature and exotic flavor is having good potential for producing various products like ready-to-serve beverages, squash, syrup, jam and jelly. Judicious blending of sea buckthorn with apricot pulp in different ratios could be promising way for value addition of both these crops leading to development of a beverage with health benefits. The uniform distribution of pulp with cloud stabilization in fruit juices and beverages adds the aesthetic appeal of the products. Pulp particles in bottled fruit juice and beverages like nectar and squashes tend to coalesce and settle at the bottom or float at the top, leaving a clear or hazy serum which results in an unattractive appearance of the product. Hence this study was taken with the aim of developing cloud stable apricot-seabuckthorn blended nectar using hydrocolloids. Seabuck thorn and Apricot cv. Khantay pulps were blended in six ratios; 0: 100, 10: 90, 20: 80, 30: 70, 40: 60 and 50: 50. Nectars were developed as per FPO specification. <ul style="list-style-type: none"> ➤ Out of six treatment combinations health drink from T₂ i.e. combination of 10% sea buckthorn and 90% apricot pulp was rated superior to other treatment combinations in terms of physico-chemical and organoleptic quality attributes. ➤ In order to have uniform appearance in the best selected blended nectar, three hydrocolloids viz., sodium alginate, carboxymethylcellulose and guar gum were used @ 0.00, 0.25, 0.50, 0.75 and 1.00 per cent. ➤ Out of different treatment combinations of hydrocolloids, carboxy methyl cellulose (CMC) at 1% and sodium alginate (0.75%) proved effective in maintaining the cloud stability. 		
4.	Input/ optimum processing conditions		
	Raw material	:	Seabuck thorn and Apricot pulp = 10:90
5.	Proximate composition		
	TSS	:	18.0%
	Titration acidity	:	0.34%
	Reducing sugars	:	5.1%
	Total Sugars	:	13.9%
	Total Carotenoids	:	1.22 mg/100 g
	Vitamin C	:	3.55 mg/100 g
	Sensory score	:	4.0 (good after 6 months of storage at ambient condition)
6.	Cost (Rs.)		110/litre
7.	Commercialization status	:	Commercialized
	(a) No. of Licensees to whom the technology has been transferred		01
	(b) Selected Addresses of Licensee /Manufacturer		M/s Food Processing Unit, Kargil.
8.	Contact Address	:	PI, AICRP on PHET Sher-e-Kashmir University of Agri. Sciences and Technology, Shalimar Campus, SRINAGAR – 191 121 (J&K)

i	Name of the Technology	:	Curing of Vanilla beans
ii	Application/ Use	:	For curing the vanilla beans for the development of flavour
iii	Description of Technology :		
	<p>The existing method of curing vanilla beans is by Bourbon method. The improved method developed by this centre is faster, less energy intensive and produces quality output in terms of vanillin content. In this, vanilla beans are killed using hot water at 63°C for 3minutes. Instead of sun drying they are subjected to mechanical drying at 55°C for 90minute/day for nearly 12days so that the initial weight of vanilla beans reduced to half. It is then slow dried at 70% relative humidity for nearly 7days to reduce the initial weight to one third. At this time the moisture content of vanilla beans are 25%. The slow dried beans are kept for conditioning for three months in suitable packaging material.</p>		
iv	Input/raw material	:	Fresh Vanilla beans
	a. Overall dimension (L x B x H mm)	:	Nil
	b. Weight	:	Nil
	c. Prime mover	:	Nil
	d. Power (hp)	:	Nil
	e. Man power	:	Nil
	f. Land	:	Nil
	g. Investment	:	Nil
v	Output capacity	:	NA
vi	Unit cost (per machine)		NA
vii	Suitability for crop/ commodity		NA
viii	Efficiency		NA
ix	Unit cost of operation		NA
x	Patent obtained/applied	:	No
xi	Commercialization status	:	Commercialized
	a) No. of Licensees	:	one
	b) Addresses of Licensees or Manufacturer	:	Tomy, Thakkanadi, Edamala, Malappuram
xii.	Contact Address	:	Research Engineer, AICRP on PHT Kerala Agricultural University Kelappaji College of Agricultural Engineering and Technology, TAVANUR, Kerala – 679573

i.	Name of the Technology	:	Fried Snack Foods from Cassava Based Composite Flour
ii.	Application/Use	:	Fried food products from composite flour based on cassava have high nutritional and textural quality as well as longer shelf life. They can easily capture the urban markets.
iii.	Description of the Technology: Ten fried food products viz., hot fries, hot sticks, sweet fries, sweet dimons, salty fries, salty delight, murukku, crisps, nutrichips (with egg) and nutrichips (without egg) were prepared and nutritive value assessed. Edible grade cassava flour can be mixed with maida, rice flour, bengal gram flour or other ingredients depending upon the type of products. The sweet products had sugar content from 31-38% while the salty and hot fries had sugar content of 3-4%. The fat content in the various products ranged from 15 to 26%, The crude protein content was generally in the range of 5-11%.		  
iv.	Inputs required		
	a) Raw material	:	Cassava flour, cereal flour, legume flour, cooking oil etc.
	b) Machinery	:	Hand press, kneader, spreader, utensils, cooking vessels, fryers, heat source and packaging machines.
	c) Over all Dimensions	:	NA
	d) Weight (kg)	:	NA
	e) Power	:	NA
	f) Man power	:	NA
	g) Land	:	
	h) Investment	:	20.00 lakhs
v.	Out put capacity	:	75 tonnes per annum
vi.	Unit Cost	:	NA
vii.	Suitability for crops/commodity	:	Cassava
viii.	Efficiency	:	-
ix.	Unit cost of operation	:	-
x.	Patents obtained/applied	:	NA
xi.	Commercialization status		Commercialized
	(a) Number of licensees to whom the technology has been transferred	:	Two
	(b) Selected Addresses of Licensee /Manufacturer	:	<ol style="list-style-type: none"> 1. M/s Triums Exporters BP Angadi, Tirur, Malappuram, Kerala 2. M/s Highlands Foods Theyyalingal, Malappuram, Kerala
xii.	Contact Address	:	Research Engineer, AICRP on PHT Central Tuber Crops Research Institute, Thiruvananthapuram – 695 017



i.	Name of the Technology	:	Process Technology for Garlic Flakes and Powder
ii.	Application/ Use	:	The technology has application for dehydration of garlic for making flakes and powder at catchment level.
iii.	Description of Technology : Garlic has medical property and used in the form of powder, flakes and paste in various food preparations and medicines India is exporting garlic in whole and powder form to various countries. Simple processes were developed to dehydrate garlic cloves and make its flakes and powder. The individual cloves are separated from bulb through a garlic bulb breaker. The cloves are then flattened / pressed mildly through a garlic flaking machine or cut into 4-6 mm long pieces through a slicer /steel knife. This operation facilitate in rupture of papery skin of cloves to enhance the drying rate considerably. Then the cloves are dehydrated using a solar dryer (2-3days) or a mechanical tray dryer (55 ^o C for 7-8 h). The dehydrated flakes/slices could be stored and used as such or could be converted into powder after size reduction to 75 mesh size. Special care has to be taken for hermetic storage/packaging of powder in a glass bottle / HDPE bottle/pouches, as it is very hygroscopic in nature and if kept in open for a short while it will absorb moisture from atmospheric and clump formation occur. No blanching/pre-treatment is required before dehydration of garlic.		
iv.	Input/raw material	:	Sound garlic bulbs
	a) Overall dimension	:	NA
	b) Weight	:	NA
	c) Prime mover	:	Electrical motors
	d) Plant & Machinery	:	Garlic bulb breaker, Grading machine, Garlic flaking machine, Slicer/knives, Solar/ mechanical dryer, Heat sealing machine, Pulveriser.
	e) Power	:	5 hp, 3 phase power connection
	f) Man power	:	3 unskilled labours
	g) Land	:	200 Sq m
	h) Investment	:	Rs 2,50,000/=
	i) Operational effi.:	:	75—80%
v.	Output capacity	:	30-50 kg/day depending on dryer capacity
vi.	Unit cost (per machine)	:	Rs 2,50,000/=
vii.	Suitability for crops/commodity	:	Garlic
viii.	Efficiency	:	Flakes/powder recovery: 28-30%
ix.	Unit cost of operation	:	Rs 15/kg of dehydrated product
x.	Patent obtained/applied	:	NA
xi.	Commercialization status	:	
	a) No. of Licensees to whom the technology has been transferred	:	Farmer-cum-processor/entrepreneur
	b) Selected Addresses of Licensee or Manufacturer	:	-
xii.	Contact address	:	Research Engineer, AICRP on PHT College of Technology & Argil. Engineering, Maharana Pratap University of Agricultural & Technology, Udaipur– 313 001 (Rajasthan)

i.	Name of the Technology	:	Technology for Ginger and Turmeric Processing
ii.	Application/ Use	:	The simple technology developed has application in processing of fresh ginger and turmeric into dried/powder form at production catchment.
iii.	Description of Technology : Spices are one of the essential elements of Indian recipes besides taste & aroma. They are also being used for medicinal values since ancient times. Ginger & Turmeric have an important place in spices. World's 50% ginger and 90% turmeric are produced in India. A technology package has been developed for processing of fresh ginger and turmeric into dried and powder form. In order to clean and remove adhered soil with rhizomes, ginger and turmeric are washed with water. Ginger is peeled with knife or by rubbing against gunny bags in order to fasten the drying process. Due care is taken to avoid the loss of material during peeling. The turmeric is cooked in water with 0.1% Sodium bicarbonate for 40-50 min to obtain good colour and even distribution of colour in the flesh. Drying is performed in solar dryer for 3 days. The outer surface of rhizomes shrivels due to drying and does not appeal properly. Polishing is therefore, required for smoothing the dried rhizomes. Like other spices, ginger and turmeric rhizomes can be powdered using a pulverizer. The material is shifted to 50 mesh & packaged in appropriate size polyethylene bags, sealed & marketed .The Turmeric powder need impregnated packaging material to prevent the loss of volatile oil. Ginger peeling machine, Solar dryer and Polisher have been developed to facilitate these operations in efficient manner.		
iv.	Input/raw material	:	Fresh ginger and turmeric rhizomes
	a) Overall dimension	:	NA
	b) Weight	:	NA
v.	c) Prime mover	:	NA
vi.	d) Plant & Machinery	:	Washing vessel, Peeling machine, Blanching vessel, Solar dryer/ mech. dryer, Polisher, Pulveriser, heat sealing machine etc.
	e) Power	:	2 hp 3 phase power connection
	f) Man power	:	2 unskilled labours
	g) Land	:	200 Sq m
	h) Investment	:	Rs 2,50,000/-
	i) Operational efficiency	:	NA
vii.	Output capacity	:	50-60 kg rhizomes/day
viii.	Unit cost (per machine)	:	Rs 2,50,000/-
ix.	Suitability for crops/commodity	:	Ginger and turmeric
	Efficiency	:	NA
x.	Unit cost of operation	:	The cost of ginger & turmeric processing into the form of well-dried rhizomes was estimated as Rs. 2.75 and 1.55 per kg, respectively.
xi.	Patent obtained/applied	:	No
xii.	Commercialization status	:	Commercialized
	a) No. of Licensees to whom the technology has been transferred	:	One SHG /entrepreneur has adopted.
	b) Selected Addresses of Licensee or Manufacturer	:	-
xii	Contact address	:	Research Engineer, AICRP on PHT College of Technology & Argil. Engineering, Maharana Pratap University of Agricultural & Technology, Udaipur– 313 001 (Rajasthan)

